Supplementary Material

Regulation of nitrogen fixation in *Bradyrhizobium* sp. strain DOA9 involves two distinct NifA regulatory proteins that are functionally redundant during symbiosis but not during free-living growth

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**Supplementary Text S1**

**Analysis of insertion sequence**

**From >PlasmDOA9\_398416 to 402975\_+1 at upstream of nifAp**

BlastN in <https://isfinder.biotoul.fr> to find IS type



TGAACCGCGCCGGGTTTGCCGGAGGCTCCAACTCGTGAGAAAGTGGAGCC --> **IRL**

TGGCCGCATAACTTAAACCAAACGGCCTCCGGCAAACCCGGCGCGGTTCA --> **IRR (reverted)**

>PlasmDOA9\_398416\_402975\_+1

ATGAAACAATCTCTTGCAATTTTATCATGTTTGGTTTGCGGTTTGCTCGTTTTGAATGGG

ATCGCACTCGCAGACTCAATGCGACGCTACAGCTGCACCGTAGAGGGGTCCGATCGAGAG

CCGGTCGGTGATCGGGACGGGCACCTTATTGTCAGCCTCCAGTACACCTGTCACGTCGCC

AATGGAGCGCTGAAGGACTCGGGAATTACGGGACTGTTCGTCAGCGAATGGAGCAGCGAG

AAACAAACGTACTTGGCTTCTCTTGACGTTCATCGCGCGCTCGACGGATTTGCGGTTAGT

CAGCTCCTGGAGGGGATCGGCTCCTCCCTTATGGAGGACAACAGGGCTGCCGGCATTGCT

GCTTCCGGCAAGACTGTGTTTAAGTTTGCCTCAGGCTCGTTAGCGGTTCTCTCAGGAAGG

ACTGTGACTTTCACGACTAAGCCCCTCGACTATCGTCAATTCGAGATGGAGTTCACGGAT

TGGCCTGACACTATTCAGCCTAAATGAACCTGCTGCCGTCGCACCAAGGAT

TGAACCGCGCCGGGTTTGCCGGAGGCTCCAACTCGTGAGAAAGTGGAGCC --> **IrL**

TGAACCATGCCGGGGCTGTCGGAGGCCAGTTTGGTTTAAGTTATGCGGCC --> COMPLEMENTARY

ATGCCTTGGGGGCCGGCAT

GGCGTAGTAGCGTTGCTCAGCTTCGACCGGCGGTATGTTGCCGATGGGCTCGAGGAGCCG

CCGGTTGTTGAACCAATCGACCCATTCTAGGGTGGCGAACTCGACAACCTGGAAGCTGCG

ACATAAGCGAAGTCGGAGAGCCAGGGGACATTCGGTCGTGGCTCCTTGAACTGGCGGTTG

ACGTGATCAGCGGGCAGGGCGCGGCCTTGTCGCTGAGCGTGGGCGGGCTTGCCGCGGATC

CCCCTTGCAAATCCATGTCCCGCATCAGCCGCGAGCCCGTGCAACGGGCAACATCGGCGC

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AGCGGAGTTATTGGGCGCGCTTCTTGGGAAGCGAGCCGCCATTCAGCGCATCACCACACG

CTGCCGTCACGCCATGGGCCAGCCCAGTGCACCCTGCGAGAGCGATTCGATCCCGCCGCC

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GCCGCTCAGCGGTAAACTCCCGATCCAGCAGATGCGCCGACACGATCTCGGCTGCCGACC

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TACCCCCAGCGCATCGCATAGCCATGCCACCGGCCAGATTGTCCGGCGCCTCGCGATGAA

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GCCCGGGTCCACTTGCAGGACGAAGCCGAGTGACTTGGCACGTCGCCTCAGATTGGCGAC

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GTGCCGGAGCGTATTGTAGAACAGAACTGCTATTTTGCGAGCGGTTGCCGTCACCGCGTT

TGGCTTGCCGGCGCGCAAAGCCAGCCGTCGATAAAATGCGCCAAGCGCCGTATCGCTCCA

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CAGCCAAGCGACGTCACTGACATCAGTTTTTGCGTCCAGGCACGCTCTTGGCGTAACGTG

CGTTGACCAGAATGACGTCGAACCACGCTGCTCGAGAATCTCGTACACCGGGATCCAATA

GACCCCCGTGGATTCCATCGCGACACCGATC

ACGCCGCACGCTTTGAACCAATCCGCCACTTCGTGCAGGTCCTGCGTGAATGT --> COMPLEMENTARY

TGGCCGCATAACTTAAACCAAACGGCC---TCCGGCAAACCCGGCGCGGTTCA --> **IRR**

GCCAAATGCACGCACCGGCGTGCCGGTGCCGCCTGG

GTCGACCGCCGCCATGTGCATTTTTGACCCTATGTCGATGGCGGCGGCTTCAACGTTGAC

CGGCTTTAATCCGGGCGGCCACCGGCAGGCGTCTTCGGCATTGCAACTCCTCCATCCAGT

CATGGGGCTGGAGGGTCTGGGTTATGCCAATCGTCATCCTCCAAATCGGGATCGCCGTCC

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GGTTAATACAGTCGCGGCTTGGGATGCAACATTCCGTGGTGTGTCCAAGTCTTGCCGAAA

**From >>PlasmDOA9\_404488 to 408844\_+1 at downstream of nifAp**

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TGATCCTCCCTCGTTTCAGTGGACACCCATGCTAGCTTTTCGGAGCTGGA --> IRL

GATGGAACGCAGAGCGGCTTAACCCC-GTCCACTTTCTCGGGGGAAGATCA --> IRR (reverted)

**From >>PlasmDOA9\_404488 to 408844\_+1**

TCGTACTTGACCGGAGGCGAGCTGCAACTTCATCAGGTCTGGTTTGTAGGCATGAGATCT

CACCTTGCCCCGGCCATAATCCAGTTCGAAGCTCGTTTCGGCGCCCAGTGAGGACCGGAA

GGAGCATGAGGCTGACGCTGGTCCGTGGCGGAAGCCGAGCGCAAGCGACGCCAGCATCTA

CCAGTGGAAAGCCAAGTTCGGCGGAACGGACGTCTCGGAAGCCAAGCGGCCGAAGACGCT

GGAGGACGAGAACACGCGGGTCAGGCAGGCGAATGATCATGCGCTTCGTGCCGATTAAGA

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CGAAGCCAGACC

TGATCCTCCCTCGTTTCAGTGGACACCCATGCTAGCTTTTCGGAGCTGGA --> IRL

TGAGCCTCCCCTAATTCGGTGGACACCGAGCTTAGGCAGCAAGAGGTGTC --> COMPLEMENTARY

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G

AGATGGAGCTAAAATCGGCTTGATCCCAGTCCACTTTTTTGGGGCAAGATCA --> COMPLEMENTARY

GATGGAACGCAGAGCGGCTTAACCCC-GTCCACTTTCTCGGGGGAAGATCA --> IRR

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